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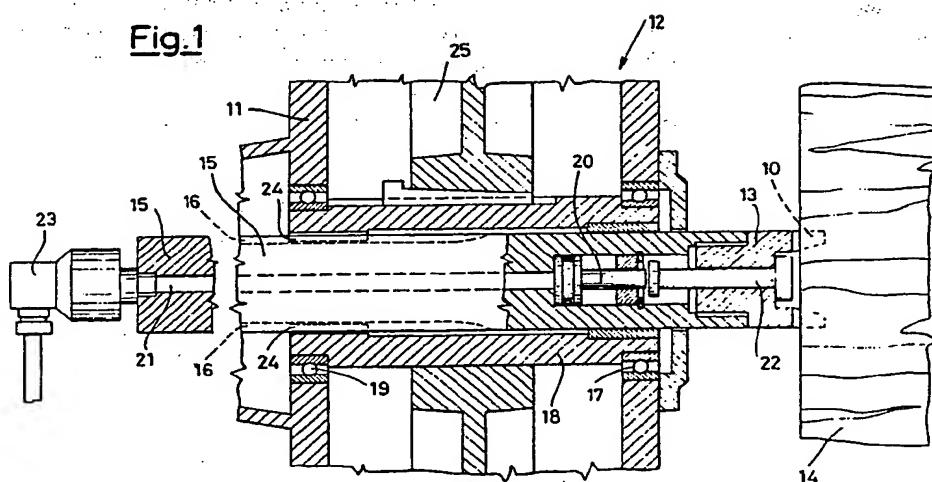
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(54) Device for axial engagement and disengagement of logs of wood in veneer cutting machines.

(57) A device for axial engagement and disengagement of one end of a log of wood rotating in a veneer cutting machine comprises a gripping claw (13), having a plurality of teeth (10) which penetrate into the wood, disposed on a rotating shaft (15). The rotating shaft (15) is axially movable by hydraulic means to enable the gripping claw (13) to carry out the movement towards and away from the end of the log. Housed inside the shaft (15) is a piston (20), which acts upon a pusher (22) in the gripping claw (13), in order to disengage teeth (10) from the end of the log, when the shaft (15) is retracted.

Fig.1



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DEVICE FOR AXIAL ENGAGEMENT AND DISENGAGEMENT OF LOGS OF WOOD IN VENEER CUTTING MACHINES

This invention refers to a device for engaging and disengaging claws axially gripping a log of wood inserted in a veneer cutting machine.

In the known types of veneer cutting machines, which are used for obtaining sheets of veneer from rotating logs of wood by the action of a blade parallel to the axis of rotation of the log, the log is axially secured to two rotating spindles by means of gripping claws which are inserted into it at both ends.

Said claws are axially movable so as to enable them to move away from and towards the ends of the log and thus keep it secured to the spindles during the cutting and, at the end of the operation, to release the remaining core of wood which is conveyed away from the machine in order to make room for the next log.

Unfortunately, in said machines of known technique, it very often occurs that, due to the forcible penetration of the teeth of the claws and to the elasticity of the wood, the core of wood remains attached by one of its ends to said teeth and it is consequently necessary to remove it by hand, resulting in a considerable waste of time and a reduction in the volume of work produced by the machine.

The general scope of this invention is to obviate the aforementioned problem by providing devices which ensure efficient disengagement of the gripping claws from the ends of the residual core of wood in veneer cutting machines.

This scope is achieved according to the invention by providing a device for axial engagement and disengagement of one end of a log of wood rotating in a veneer cutting machine, of the type comprising a claw, having a plurality of teeth which penetrate into the wood, disposed on a shaft which rotates by means of a coupling with a spindle in which said shaft slides axially from a first position in which the teeth penetrate the log to a second position in which the teeth are removed from the log, in order to insert the teeth into the end of the log and thus cause it to rotate for the veneer cutting operations while cooperating with a similar device at the other end of the log, characterized by the fact that disposed coaxially to said claw is a pusher which is positively movable, by means of actuators, from a retracted position in which it does not interfere with the log penetrated by the teeth to an extracted position in which it pushes the log away from said teeth during the substantially simultaneous movement of the shaft from said first to said second position.

The innovative principles of this invention and

its advantages with respect to the known technique will be more clearly evident from the following description of a possible exemplificative embodiment applying such principles, with reference to the accompanying drawings, in which:

- figure 1 shows a schematic cross-sectional view of a device for axial engagement and disengagement of a log according to the invention;

- figure 2 shows a schematic plan view of a veneer cutting machine comprising two devices of figure 1.

With reference to the figures, as shown in figure 1, a device, generically indicated by reference 12, for engaging and disengaging a plurality of teeth 10 of a claw 13 in one end of a log 14 comprises a shaft 15 carrying the claw 13 and fitted, slidably but not rotatably, by means of a splined profile 16, into couplings 24 in a spindle 18.

The spindle 18 in turn is housed, by means of bearings 17 and 19, in a supporting upright secured to the floor.

The shaft 15 is axially movable by known traversing means (for example hydraulic), not shown, to enable the gripping claws to carry out said known movement towards and away from the end of the log.

Housed inside the shaft 15 is a single-acting piston 20, hydraulically or pneumatically operated by means of a duct 21 inside the shaft 15 and connected by means of a rotating joint 23 of known technique to a supply system which is not shown since it can be of any known type. In this way the shaft 15 is free to rotate driven by the spindle 18 which, in order to rotate, is connected to a pulley 25 coaxial thereto.

The piston 20 acts upon a pusher 22 which passes axially through the claw 13 between the teeth 10.

As can be seen in figure 2, the device 12 and a device 12' of identical structure form an integral part of a veneer cutting machine 26 the remainder of which is made according to the known technique and is therefore neither described nor drawn in detail.

The two devices 12, 12' are disposed at both ends of the log 14 and the device 12 is provided with a coupling 27 between the pulley 25 and an electric motor 28.

Since the two devices 12, 12' are made substantially identical, further description is considered superfluous; the component parts of the device 12 will simply be distinguished from the analogous parts of the device 12 by the suffix "prime".

Since the device 12' is not connected to driv-

ing mechanisms, obviously, it need not necessarily be provided with the pulley 25.

When the veneer cutting machine is in operation, the shafts 15, 15' are pushed by the known traversing means so that the teeth of the claws 13, 13' engage in the ends of the log positioned between them so that the spindle 18 can drive it round when the motor 28 is turned on for the veneer cutting operations.

On completion of the aforesaid operations, the shafts 15, 15' retract and at the same time the pistons inside them are fed so as to operate the pushers in the claws which exert pressure on the ends of the log thus reliably disengaging it from the teeth 10, 10'.

Once the processing residue has been expelled, the pressure is released from the pistons and the pushers remain in their extracted position until they are moved back to their initial retracted position by the teeth of the claws penetrating the end of the subsequent log thanks to the forward movement of the shafts 15, 15'.

As is easily imaginable, the device is thus able to exert all the necessary force to disengage the teeth of the claws from the wood without, however, reducing in any way whatsoever the force available for penetration of the teeth in order to secure the log.

The foregoing description of a device applying the principles claimed herein is obviously given merely by way of example in order to illustrate such principles and should in no way be considered a limitation to the sphere of this invention.

For example, the mechanisms transmitting motion to the spindle 18 may be of any type known to the technician and not necessarily belts and pulleys as shown in the figures. Likewise, the means for preventing relative rotatory movement between the spindle and the sliding shaft may also be different, as is easily imaginable by any technician expert in the field.

Claims

1. Device for axial engagement and disengagement of one end of a log of wood rotating in a veneer cutting machine, of the type comprising a claw, having a plurality of teeth which penetrate into the wood, disposed on a shaft which rotates by means of a coupling with a spindle in which said shaft slides axially from a first position in which the teeth penetrate the log to a second position in which the teeth are removed from the log, in order to insert the teeth into the end of the log and thus cause it to rotate for the veneer cutting operations while cooperating with a similar device at the other end of the log, characterized by the fact that dis-

posed coaxially to said claw is a pusher which is positively movable, by means of actuators, from a retracted position in which it does not interfere with the log penetrated by the teeth to an extracted position in which it pushes the log away from said teeth during the substantially simultaneous movement of the shaft from said first to said second position.

2. Device as claimed in Claim 1, characterized

by the fact that said actuating means comprise a piston incorporated in said shaft, which moves coaxially to the pusher to shift it into said extracted position and is fed through a duct inside the shaft connected to a control fluid supply circuit by means of a rotating joint disposed at the end of the shaft opposite the end carrying the claw.

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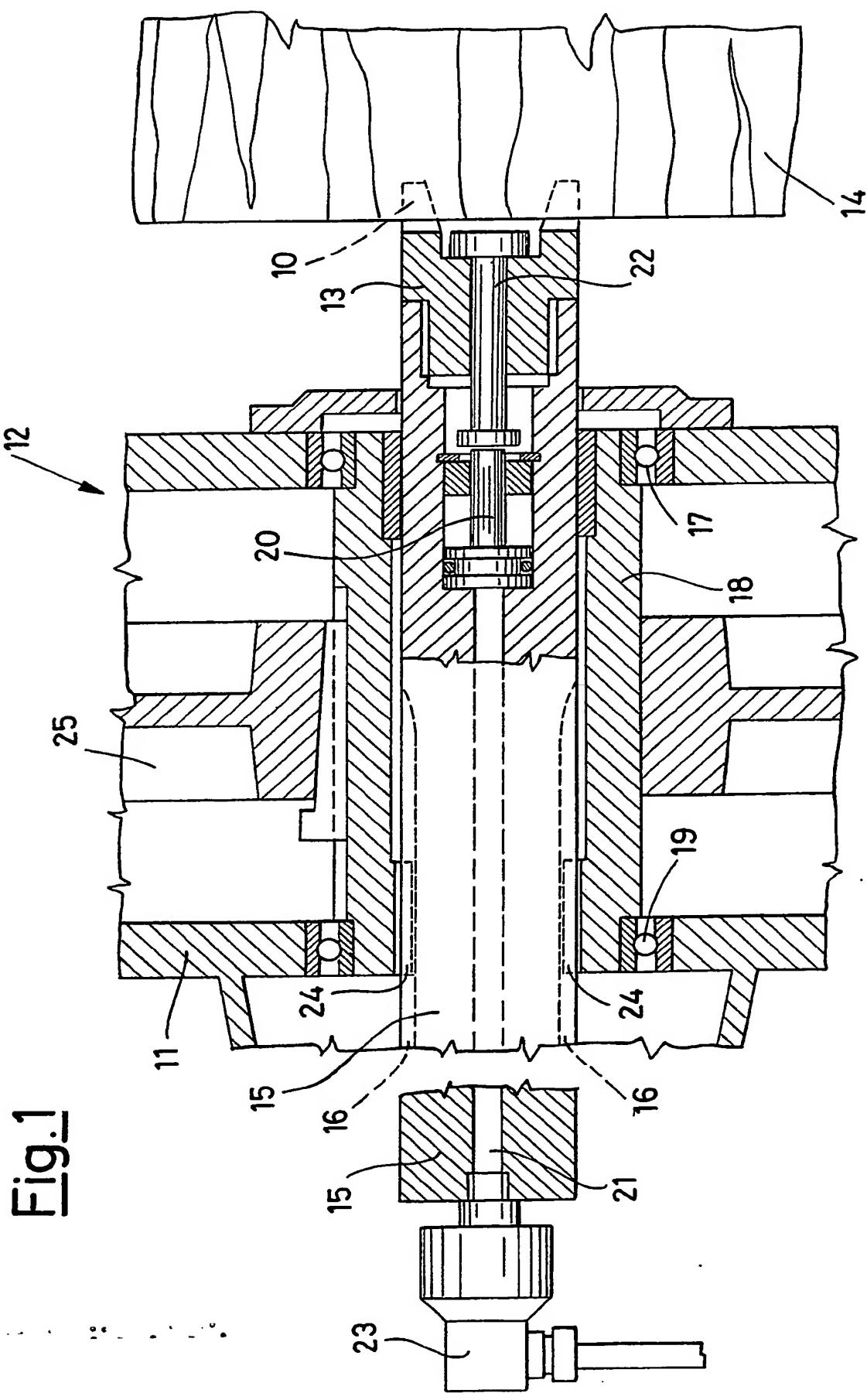
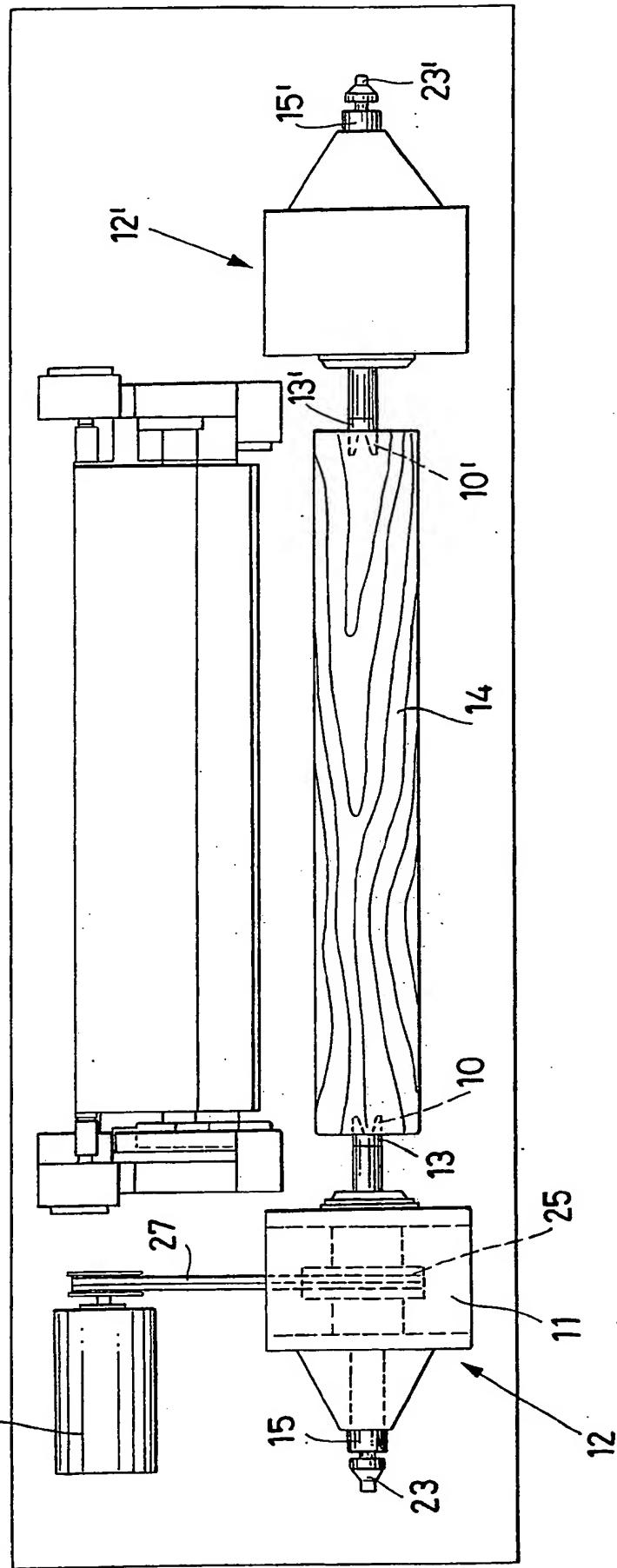


Fig.2

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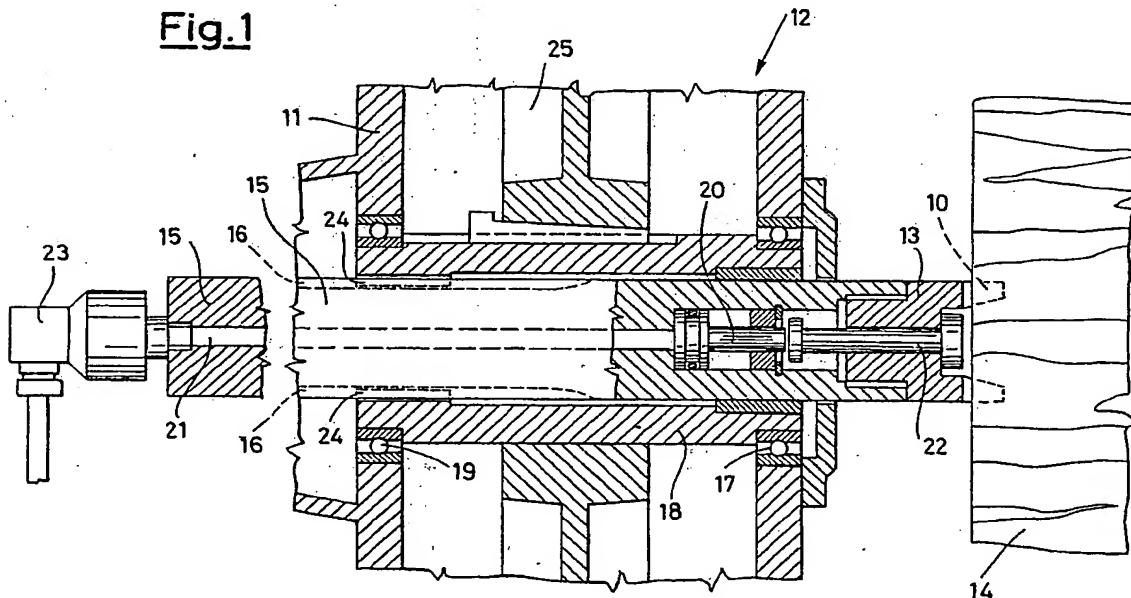
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Fig.1



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EUROPEAN SEARCH
REPORT

Application Number

EP 90 20 0378

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US-A-3 176 735 (PELTO) * column 1, line 12 - line 21 ** column 2, line 21 - line 30; figure 2 -----	1,2	B 27 L 5/02 B 27 C 7/04
X	US-A-2 194 391 (INGALSBE) * right column, line 35 - line 53; figures 1,3 * -----	1	
A	US-A-4 603 744 (RAMIREZ) -----		
TECHNICAL FIELDS SEARCHED (Int. Cl.5)			
B 27 L B 27 C B 23 B			
The present search report has been drawn up for all claims			
Place of search	Date of completion of search	Examiner	
The Hague	13 September 91	HUGGINS J.D.	
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